
US EPA, Region 10

Fact Sheet for Source Control on the Thea Foss & Wheeler/Osgood Waterways



Organization of this Fact Sheet

EPA has fielded countless questions about "source control" since the City and EPA signed the Agreed Order on Consent for pre-remedial investigation and design work in the Thea Foss and Wheeler/Osgood Waterways in 1994. While the concepts and ideas behind "source control" are the same for all of the Commencement Bay waterways, Thea Foss/Wheeler Osgood is unique because stormwater plays a significant role in the overall source control picture. This fact sheet is divided into two "chapters", one for source control in general and one for stormwater because the two subjects are separate but still closely related.

Background

The Thea Foss & Wheeler/Osgood Waterways are part of the Commencement Bay/Nearshore Tideflats ("CB/NT") Superfund Site. Since 1989, various efforts have been taken to identify, control and, where feasible, eliminate contaminant sources to the Thea Foss and Wheeler-Osgood Waterways. These efforts are important because, before sediment cleanup can occur, sources of the chemicals need to be either eliminated or reduced to a level so that clean sediments will not be recontaminated. This fact sheet is intended to provide some basic information about sources and the approach being taken to control sources to the Thea Foss and Wheeler/Osgood Waterways.

Chapter 1: Source Control in General

Types of sources: Sources of chemicals seen in the waterway are generally related to practices or activities (past or current) that occur around the waterway. In general, chemicals get into the waterway by:

- Direct discharge to the water from industrial operations, stormwater outfalls, natural seeps, point and nonpoint discharges.
- Eroding or leaching from banks or upland soils where, perhaps, spills occurred in the past or material was deposited (e.g., slag or other wastes).
- Groundwater discharge to the waterway where the groundwater itself may be contaminated or might be moving through contaminated soil/sediment on its way to the waterway.

Who is responsible for Source Control? How does Source Control happen?

EPA & Ecology have a cleanup plan for the CB/NT Superfund site ("Source Control Strategy") that puts Ecology in charge of identifying and controlling upland sources while EPA focuses on remediating sediments. At sites where the two authorities overlap (i.e., along the banks & beach lines), EPA and Ecology determine jurisdiction depending on the type and extend of the contamination and whether it is more feasible for Ecology or EPA to do the cleanup.

Ecology's Role: Ecology conducts inspections of possible sources of contamination (including businesses and stormdrains). Ecology samples upland and along the waterway, reviews discharge data, and conducts inspections to determine whether a site is a potential or confirmed source of problem chemicals to the waterways. Based on definitions in EPA's Record of Decision (ROD), Ecology classifies sources as either: List 1 (potential source), List 2 (probable source) or List 3 (confirmed source). Furthermore, a source may be considered as "major" because it is most directly linked with sediment impacts. Then, and often in collaboration with the City, Ecology does more investigation and/or source control work on the prioritized sources. Ecology uses many regulatory tools to control sources including the Model Toxics Control Act (MTCA), for groundwater and upland sources, and pollutant discharge permits, for direct discharges to the waterways.

The following five levels of source control, or "milestones" have been developed for tracking and reporting source control efforts for each problem area or the waterways.

- Milestone 1: All ongoing, confirmed sources of problem chemicals are identified as List 1, 2 or 3, have been completed.
- Milestone 2: Essential administrative actions (e.g., National Pollutant Discharge Elimination System "NPDES" permits, MTCA orders, consent decrees) in place for major sources.
- Milestone 3: Essential remedial actions (e.g., construction, soil removal complete, best management practices are in place) for major sources are implemented.
- Milestone 4: Administrative actions (e.g., MTCA orders, NPDES permits) are in place for all ongoing confirmed sources plus any new sources that have been identified.
- Milestone 5: Remedial actions for all ongoing sources are implemented.

In the Thea Foss Waterway:

- The Head of Thea Foss and Wheeler/Osgood problem areas are complete thru Milestone 2.
- The Mouth of Thea Foss problem area is complete thru Milestone 5.

EPA's Role: EPA maintains an oversight role on Ecology's source control work, reviewing and approving Milestone reports as they are issued. EPA's role includes:

- Consulting with Ecology on NPDES (discharge) permits for the CB/NT area and any upland source control actions where, for instance, banks may be involved or a direct source to the waterway may be removed.
- Working closely with Ecology and the City on implementation of the Stormwater Management Plan and major stormwater drain investigations (see Chapter 2).
- Working closely with the City on the collection of data and information about the waterway as part of the agreement requiring enough information be collected to develop a cleanup plan for sediments in the waterway.
- Reviewing and commenting on the City's proposed shoreline development permits and environmental reviews of shoreline projects (this is usually in coordination with other reviewing agencies, including Ecology).

The City's Role: The City of Tacoma has been very actively involved in source control since it is a PRP (Potentially Responsible Party) in the Thea Foss &

Wheeler/Osgood Waterways. As the lead PRP for pre-remedial design, the City has been most visible in directing all the work done to date (e.g., data gathering & evaluation). Meanwhile, it is important to note that the City is actively controlling its own sources. A list of the City's efforts include:

- Implementing the Stormwater Management Program for Thea Foss Waterway. This plan was required as part of the City's NPDES permit from Ecology and the Agreed Order on Consent with EPA. See Chapter 2 for more information on stormwater.
- Cleaning up City-owned upland parcels as required by Ecology under the regulatory authority of the State's Model Toxics Control Act (MTCA).
- Working on cleanup of the Coal Gas site as one of several parties involved with this site - this is another Ecology MTCA site.
- Working to coordinate downtown and other shoreline development projects with EPA's Superfund program as well as the host of other state and federal agencies to ensure that approvals and permits for development do not conflict with the overall Superfund cleanup project.

Chemicals & Data

Chemicals of Concern (COCs): Not all the chemicals found in the sediments of the waterways are thought to be problems from the standpoint of recontamination. Many of the chemicals found in the waterways came from historical activity that is no longer occurring. As these activities and sources have changed over time, so too has our understanding of the chemicals posing a recontamination threat to sediments. The *tentative* list of COCs shown below comes from the Round 2 Data Evaluation Report and will be revised in the Round 3 Data Evaluation Report, available for review in Summer 1998.

Tentative COC list:

- | | |
|------------------------------------|-----------------------------------|
| - Bis(2-ethylhexyl)phthalate | - Benzo(g,h,i)perylene (an HPAH) |
| - Dibenzo(a,h)anthracene (an HPAH) | - Ideno(1,2,3-cd)pyrene (an HPAH) |
| - Pesticides (4,4'-DDE & 4,4'-DDD) | - PCBs |

How does the data correlate to source control? On a large scale, source control and data are about to converge in the form of EPA's proposal for sediment cleanup. The data have been collected, analyzed and statistically treated to tell where chemicals are now, how they're transported and the effect they're likely to have in sediments. With application of a model, the data provides two pieces of information related to source control:

- the final list of COCs based on current rates of input to the waterways, and
- estimates of the levels of control needed to reduce COC inputs to the point that sediments are not likely to recontaminate (called "**source control goals**").

While these two pieces of information are very important to EPA's cleanup decision, it is equally important to remember that sources continue to be investigated and controlled through the efforts of both Ecology and the City. Source control is a continuous process. Even as EPA provides the Round 3 Report and a proposed cleanup plan for public review next summer, source control will continue to occur up to, and possibly through, remediation.

Chapter 2: Stormwater in Thea Foss/Wheeler Osgood



Stormwater: What It Is, How It Fits Into Source Control

Stormwater is just one of several possible sources of contamination to the Thea Foss Waterway; however, it is a significant potential source since over 5,700 acres of land drains to the waterway. Stormwater consists of *everything and anything* that can get into the City stormwater collection system including runoff from yards, driveways, streets, parking lots, and roofs. It also includes runoff from industrial or commercial areas. EPA required a detailed plan for the management of sources of contamination to stormwater in the Thea Foss Waterway because it is such a large drainage area as well as a Superfund site about to undergo cleanup. (The detailed plan is actually required in a special condition to Ecology's general NPDES permit for stormwater and is referred to as "**SWMP/Thea Foss**".) The rest of this chapter explains the distinction between municipal and industrial stormwater and then explains how the City works with Ecology and EPA to control municipal stormwater.

While stormwater is only one type of discharge to the waterway, there are several ways to discuss stormwater, depending on your interest. Generally, it helps to think of stormwater as being either (1) a municipal discharge (as described above) or (2) an individual (usually industrial or commercial) discharge.

Municipal stormwater discharges

Permit & management

- Ecology's general permit does not address individual industrial sites that may also discharge stormwater (e.g., privately-owned & managed discharges such as JM Martinac, Superior Oil).
- Ecology's general permit puts Tacoma in a class with other cities but the City has done more than other municipalities in terms of planning and implementation to meet source control needs because Thea Foss sediments are being cleaned up under Superfund.
- Combined with the requirements of other documents (such as the City's Agreed Order on Consent with EPA), the SWMP/TFoss establishes an overall "**stormwater process**".

Municipal stormwater is difficult to control because

- It includes whatever gets into the City's stormwater collection system.
- Characterizing the chemicals is difficult because flow volumes are variable, making it hard to capture samples, and because upstream use of COCs may be intermittent or seasonal.
- Characterizing the chemistry of what happens when large freshwater volumes of water mixes with saline waters in the waterway is complex.

Industrial stormwater discharges -

- They're usually covered by individual NPDES permits
- They're generally easier to characterize chemically because what goes into the stormwater is better known and the actual drainage areas are MUCH smaller and easier to sample (an exception might be a railroad yard) - and so,
 - permits may include actual effluent limits, depending on the chemical

nature of the discharge - and

- emphasize best management practices which are ways to prevent pollutants from getting into stormwater flow in the first place.

The Stormwater Process: The City defined a "**stormwater process**" (it's outlined in the SWMP/Thea Foss) and uses it to control COCs in municipal stormwater. This iterative process allows the City to repeat certain parts of it as needed (e.g., do inspections as new sources move into the basin, revisit sites for updated best management practices, public education). The basic process is as follows:

- Characterize the effluent - find out if the discharge from a particular stormdrain contains problem chemicals or COCs.

- Identify possible sources of the chemical(s) up the drain line - this may involve sampling the outfalls to the waterway, coordination with other municipalities, searching records, conducting inspections of businesses or the lines themselves. It might also involve significant follow-up if inspections reveal problem practices that need to be corrected.

- Prioritize sources - which is relatively straightforward on a short line or small drainage, but is a challenging task for large drains such as 237A/B ("Twin 96ers" or "Twins"). For the Twins, the City divided the 4,900 acres into sub-basins and is prioritizing the areas likely to have sources of problem chemicals/COCs for attention first.

- Decide what actions are needed next, depending on the types of drainages and potential sources that might be in the basins. For example, the decision may be where to sample the stormwater line relative to a potential source as opposed to doing a drive-by inspection. The decision may additionally depend on whether the land use is commercial, industrial or residential.

- Carry out the work to control the source. The control work may range from reviewing best management practices with commercial or industrial contributors to the drain line to issuing orders as allowed by municipal and/or state administrative codes.

- Keep track of decisions made and work done or required. Evaluate whether source control actions are/have been effective and follow-up as needed (e.g., re-visit sites, re-sample drain lines or outfall, verify treatments or best management practices implementation).

- Report the results of the process with respect to whether or not source control has been effective in controlling the release of problem chemicals/COCs to the waterway.

Other controls

- Street sweeping keeps the contribution of dust/dirt and other particulates down. This is important because particulates settle out into marine sediments and are often associated with high concentrations of hydrocarbons.

- Line inspections which verify connections, flow direction and whether maintenance may be needed. This is important because stormdrains in the tideflats are old enough that sanitary waste streams were once included.

- Public education to make citizens aware of individual responsibilities (e.g., fertilizers, car-washing, oil-changing).

Stormwater Management, How It Works With Source Control: Remembering that stormwater discharges are only a part of the overall source control picture for

Thea Foss/Wheeler Osgood, the following loosely parallels the concepts of major/minor sources and source management described earlier in Chapter 1.

- Ecology and EPA worked with the City to identify a list of the stormwater drains that, in the past or currently, provide contamination to the sediments. These are generally referred to as the "major" drains and include: 230, 235, the Twin 96ers (237A & 237B), 248/243 and 254.

- The City applied the "stormwater process" to these drains according to the schedule in the SWMP, which targets completion of source identification and characterization on the major drains by 12/31/97. An important note: the City is on track to meet the deadline for its major drains!

- Ecology and the City investigated other drains around the waterway and the City applied various controls as problems were identified.

- The City and Ecology focused part of the resources available for stormwater on getting better estimates of the pollutants emptying into the waterway. As of this fall/winter, the City and Ecology are in the process of collecting a second season of stormwater sediment data.

- The City is preparing what we currently call Drain-by-Drain Reports for the major drains. These reports aren't required by the SWMP/Thea Foss, but rather by agreement between the City and EPA as a way to report the progress of stormwater source control. The reports basically describe where the City is in the "stormwater process" on each drain and include information like:

- maps
 - lists of businesses or sources to the drain, which ones were inspected, what the results of inspections were, follow-up work and visits, as well as results of catch basin or other sampling
 - inspections of, and maintenance work on, City-maintained portions of the drainage

- When EPA proposes a cleanup plan for the waterway, a comprehensive stormdrain report will also be completed and provided for public review. This document will summarize the City's stormwater source control efforts for the whole Thea Foss drainage, as opposed to separate drain reports described above.

Summary: Looking Forward to Cleaning Up



In summary, Ecology and the City have accomplished a lot since the Superfund order for pre-remedial design work was signed in 1994.

While this fact sheet provides some background and an outline of the source control approach, it's important to understand that there is more to be done. As described above, source control is a continuous effort. A brief list of source control work scheduled for completion before sediment cleanup begins includes the Tacoma Coal Gas Site where Ecology has a MTCA order in place for upland source control. At this site the remaining concerns focus on the extent to which groundwater moving into the waterway will recontaminate clean sediments.

The next important pieces of the source control picture are the comprehensive stormdrain report (Chapter 2) and the Round 3 Data Evaluation Report with source control goals and a recontamination assessment for the waterways (Chapter 1). Otherwise, much of the source control work around Thea Foss and Wheeler/Osgood is complete and Ecology will be working with EPA to complete the Milestone Reports. Individual discharge permits (e.g., Martinac, Tosco, Unocal) will be re-issued as they expire (i.e., every five years) and will be available for public review according to the State's administrative procedures.

Questions? Who to Call

At Ecology

Dave Smith (360) 407-6250
Manager, Urban Bay Action Team (Commencement Bay)

Specific sites may be assigned to different project managers
and Dave will provide the appropriate contact for you.

At EPA

Kris Flint (206) 553-8155
Remedial Project Manager for Source Control

Christine Psyk (206) 553-1748
Remedial Project Manager for Thea Foss/Wheeler Osgood Waterway

At City of Tacoma

Mary Henley (253) 502-2113
Manager of the Superfund Pre-Remedial Design Work

For those with impaired hearing or speech, please contact EPA's telecommunication device for the hearing impaired (TDD) at (206) 553-1698. To ensure effective communication with everyone, additional services can be made available to persons with disabilities by contacting one of the EPA numbers listed above.
